

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Polymers: Concepts, Properties, Uses and Sustainability

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why are polymers so common?  
Lecture 2 - Polymers  
Lecture 3 - Process, structure, property  
Lecture 4 - Biopolymers  
Lecture 5 - Molecular weight and distribution  
Lecture 6 - Polymerization  
Lecture 7 - Macromolecular nature  
Lecture 8 - Renewable sources for polymers  
Lecture 9 - Polymerization/depolymerization  
Lecture 10 - States of interest  
Lecture 11 - Application based terms  
Lecture 12 - Reuse and repurpose  
Lecture 13 - Molecular conformations  
Lecture 14 - Size, mobility and flexibility  
Lecture 15 - Polyelectrolytes  
Lecture 16 - Structures in biopolymers  
Lecture 17 - Amorphous/crystalline states - 1  
Lecture 18 - Amorphous/crystalline states - 2  
Lecture 19 - Orientation  
Lecture 20 - Interactions  
Lecture 21 - Kinetics of crystallization  
Lecture 22 - Glass transition - 1  
Lecture 23 - Glass transition - 2  
Lecture 24 - States in environment  
Lecture 25 - Liquid crystalline polymers  
Lecture 26 - Copolymers - 1  
Lecture 27 - Copolymers - 2  
Lecture 28 - Blends - 1  
Lecture 29 - Blends - 2

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Lecture 30 - Microstructure in polymers  
Lecture 31 - Composites  
Lecture 32 - Stress strain response  
Lecture 33 - Additives for polymeric systems  
Lecture 34 - Blends/composites in recycling  
Lecture 35 - Physical/chemical crosslinking  
Lecture 36 - Mechanical properties - I  
Lecture 37 - Mechanical properties - II  
Lecture 38 - Physical and chemical aging  
Lecture 39 - Solutions  
Lecture 40 - Conducting polymers  
Lecture 41 - Dielectric response - I  
Lecture 42 - Dielectric response - II  
Lecture 43 - Plasticity  
Lecture 44 - Properties of composites  
Lecture 45 - Viscoelasticity  
Lecture 46 - Thermal response  
Lecture 47 - Viscoelasticity  
Lecture 48 - Viscoelasticity  
Lecture 49 - Dynamic Mechanical analysis  
Lecture 50 - Damping Applications  
Lecture 51 - Time Temperature superposition  
Lecture 52 - Impact and energy absorption  
Lecture 53 - Testing for applications  
Lecture 54 - Properties of blends  
Lecture 55 - Biomimetic polymers  
Lecture 56 - Advanced mechanics  
Lecture 57 - Viscoelastic response  
Lecture 58 - Polymer packaging  
Lecture 59 - Porous polymers/membranes  
Lecture 60 - Polymer at interfaces  
Lecture 61 - Diffusion in polymers  
Lecture 62 - Compatibilizers  
Lecture 63 - Biopolymer applications  
Lecture 64 - Adhesives and Paints  
Lecture 65 - Dissolution and recovery  
Lecture 66 - Polymerization kinetics  
Lecture 67 - Polymerization reactors  
Lecture 68 - Polymer processing - I

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Lecture 69 - Polymer processing - II  
Lecture 70 - Polymer processing - III  
Lecture 71 - Flow simulations  
Lecture 72 - Processing for recycling  
Lecture 73 - Recycle, up-down cycling - I  
Lecture 74 - Recycle, up-down cycling - II  
Lecture 75 - Flow behaviour - rheology  
Lecture 76 - Crosslinking  
Lecture 77 - Conversion of polymers  
Lecture 78 - Rheology and entanglement  
Lecture 79 - Rheological models  
Lecture 80 - Rheology and processing  
Lecture 81 - Absorption and leaching  
Lecture 82 - Swelling of polymers  
Lecture 83 - Viscosity for polymer processing  
Lecture 84 - Microplastics, aerosols, sediments  
Lecture 85 - Biodegradation of polymers  
Lecture 86 - Biodegradable polymers - 1  
Lecture 87 - Biodegradable polymers - 2